RAND REVIEW

Spring 2004 Vol. 28, No. 1

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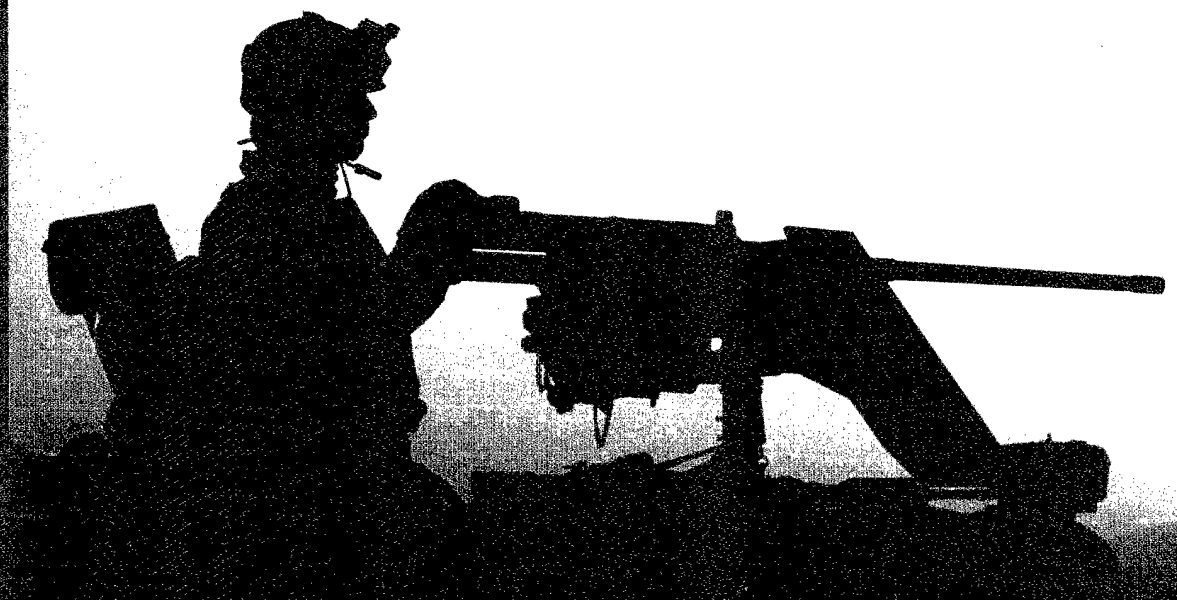

Redefining the Enemy

The World Has Changed, But Our Mindset Has Not

—By Brian Michael Jenkins

Redefining Counterterrorism: The Terrorist Leader as CEO
—By Bruce Hoffman

Five Pillars of Democracy: How the West Can Promote an Islamic Reformation
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Swollen Waistlines, Swollen Costs: Obesity Worsens Disabilities and Weighs on Health Budgets
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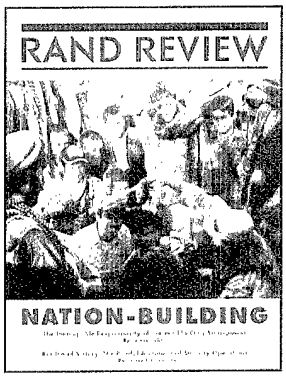
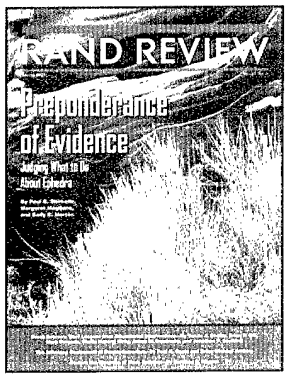
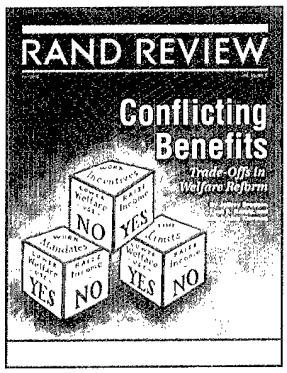
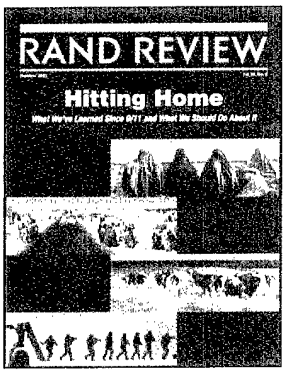
Get the Big Picture

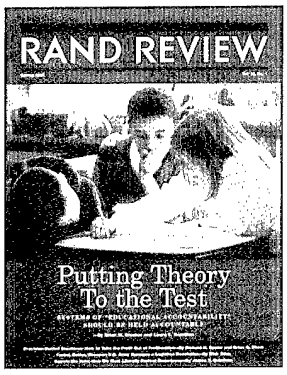
RAND Review covers the big issues with an eye for the important details.

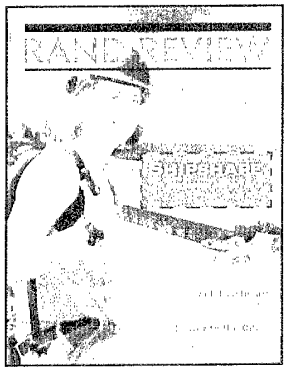


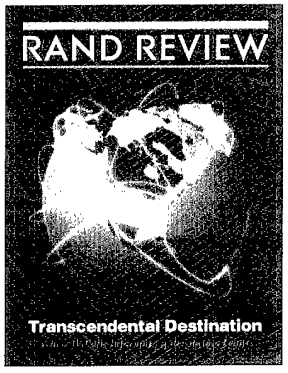


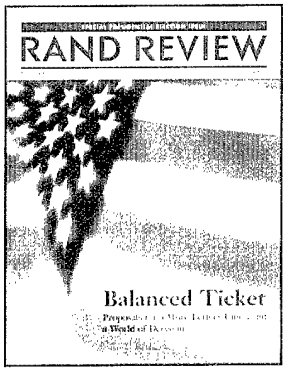


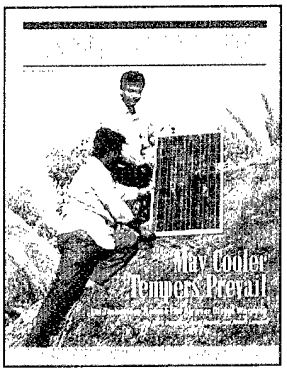












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RAND: OBJECTIVE ANALYSIS. EFFECTIVE SOLUTIONS.

Message from the Editor

A former U.S. Army captain who served with Special Forces in the Dominican Republic and then in Vietnam, who founded the RAND Corporation's terrorism research program in 1972, and who worked for nine years as deputy chairman of one of the world's largest private investigative and security consulting firms, Brian Michael Jenkins has had ample opportunity to observe crime and conflict from multiple vantage points. His experiences make him uniquely qualified to assess America's current approach to terrorists and other enemies. He finds it "obsolete."

Despite the fact that the Cold War ended more than ten years ago, that a gang of hijackers dramatically demonstrated the destructiveness of new modes of conflict more than two years ago, and that U.S. troops are dying daily at the hands of those who wield far less military might, we in the United States continue to view our enemies through the "narrow bores" of our traditional military capabilities, Jenkins writes. We have adapted incrementally, and we remain powerful, but the transformations necessary in our planning and doing have been impeded by the lack of transformation in our thinking.

Jenkins would be the first to admit that many of his arguments have been made before, at least in piecemeal fashion, by other authors at RAND and elsewhere, especially since Sept. 11, 2001. He believes, however, that the message has yet to sink in that the new threats to national security represent not just temporary aberrations but fundamental changes in the ecology of conflict.

The root of his concern is neither any single U.S. administration nor any single component of our national security structure but rather an accretion of outmoded habits of thought that pervade throughout the structure. Jenkins contends that we in America must reconsider our planning scenarios, reorganize our forces for rapid adaptation to new situations, reorient our intelligence efforts so that we can "get smart fast," and revivify our international alliances—but that each of these requirements presupposes that we first rethink our assumptions.

—John Godges

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On the Cover

An American soldier mans a gun atop an armored vehicle in the Khost area of Afghanistan near the Pakistani border in the early morning of March 30. U.S. troops were sweeping through the hardscrabble villages in the rugged region, searching for weapons and information as part of an effort to cut off hiding places for al Qaeda and Taliban fugitives.

AP/WIDE WORLD PHOTOS/EMILIO MORENATTI

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African American Teens Are Less Likely to Become Regular Smokers

Researchers know that early smoking experimentation among teens is a known risk factor for escalation to regular smoking later on, but is this true for all racial and ethnic groups? A new RAND study indicates that, compared with other teenagers, "African American youth try smoking early but then quit early on," said Phyllis Ellickson, lead author of the study.

The social environment of African American youth includes positive influences that are strong enough to offset other risk factors for smoking.

The study, published in the February issue of the *American Journal of Public Health*, tracked more than 6,000 African American, white, Latino, and Asian American youth for ten years, from ages 13 to 23.

By age 13, a total of 69 percent of Latino and 62 percent of African American youth in the study had tried smoking, compared with 52 percent of whites. But by age 15, only 7 percent of the African American teenagers were regular smokers, in contrast to about 20 percent of both whites and Latinos.

The study found that after age 13 or 14, the social environment of African American youth includes positive influences—such as a stronger likelihood of communicating with parents about social problems and of encountering parental disapproval of smoking—that are strong enough to offset other risk factors for smoking, such as doing poorly in school.

"Our results suggest we might be able to stop more young smokers from developing a regular habit by helping parents talk with their children, improving family bonds, and dampening peer pressure to smoke," Ellickson said. ■

New Interventions Lead to Improvements for Minorities Suffering from Depression

Following on the heels of national calls for approaches to reduce health disparities between whites and minorities, researchers at RAND and the University of California at Los Angeles have shown that new interventions improve the way that primary care medical practices treat depression, leading to significant, long-lasting benefits for African American and Latino patients.

"These interventions significantly improved health in the long run, for historically underserved minority groups at risk for poor health outcomes."

"These interventions significantly improved health in the long run, for historically underserved minority groups at risk for poor health outcomes," said Kenneth Wells, principal investigator of the study published in the April edition of the *Archives of General Psychiatry.*

As part of a random controlled trial, primary care practices across different sites in the United States were assigned either to their usual care for depression or to interventions that provided the practices and patients with education about depression treatments and resources. The interventions made it easier to obtain treatments—either medications or psychotherapy—if necessary.

Among all participants, the interventions caused a small overall improvement in depression outcomes. But the improvements among minorities were large enough to erase the disparities in outcomes between minorities and whites in standard care, particularly in the psychotherapy-based version of the intervention.

Minorities continued to benefit from the intervention five years later. In fact, their improvement at five years was the largest outcome improvement found in the study at any time period. ■

"Frontline" Responders Vary in Preparedness for Terrorist Attacks

Much of the responsibility for protecting the American people against terrorist attacks devolves to state and local responders, who form the "front line" in our homeland defense against terrorism. How prepared are these responders for potential terrorist attacks, and what are their key concerns?

"Organizations have undertaken a range of activities to improve their response capabilities, but it is difficult to say how much better prepared they are, because no national standards exist to measure organizational and community preparedness," said Lois Davis, author of a nationwide RAND survey of 910 state and local responder agencies.

The agencies include police departments, fire departments, offices of emergency management (OEMs), emergency medical service (EMS) agencies, hospitals, and public health agencies. RAND conducted the survey for the federal Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction (better known as the Gilmore Commission).

Based on the survey, most state and local emergency response organizations want the U.S. Department of Homeland Security to improve coordination, information sharing, and communication among all levels of government. These moves could help to unify state and local efforts with federal programs.

Nevertheless, fewer than 10 percent of local law enforcement agencies have applied for the security clearances necessary to obtain access to federal intelligence information. In contrast, more than three-fourths of state emergency management and state public health organizations have sought the security clearances.

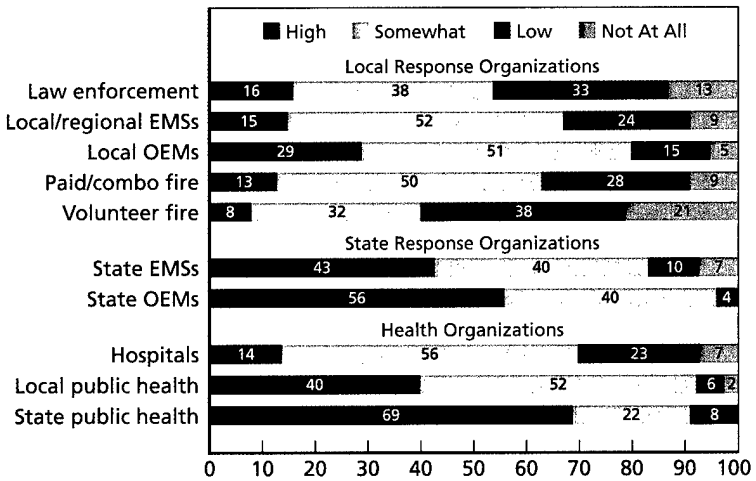
Less than a fifth of hospitals and local responders (excluding local OEMs) considered it a high priority to spend money on the type of terrorist incident they deemed most important for their department (or agency) to prepare for. Higher percentages of state agencies and local public health agencies considered it a high spending priority (see figure).

In terms of funding, local preparedness officials are less satisfied with the distribution of federal homeland security grants than are state officials. "Their mantra has been wanting the funding to come directly to them, rather than having it filtered through the states," Davis said.

Within each discipline (such as law enforcement), agencies receiving external resources were more likely to undertake preparedness activities than agencies not receiving such support. For example, only 41 percent of local police departments said they had updated their emergency response plans. But of those departments that had received outside funding, 61 percent updated their plans. Of those that had not received outside funding, only 35 percent updated their plans. ■

For more information: "Summary of Selected Survey Results," Appendix D in *The Fifth Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction: V. Forging America's New Normalcy: Securing Our Homeland, Protecting Our Liberty*, Dec. 15, 2003. Available at www.rand.org/nsrd/terrpanel/.

Priority Placed on Spending to Combat Terrorism Varies



NOTE: N's: law enforcement = 131; local/regional EMSs = 92; local OEMs = 107; fire departments = 255; state EMSs = 33; state OEMs = 28; hospitals = 102; local public health = 125; state public health = 37.

Concerns Grow About South Korean Attitudes Toward United States

In late 2002 and early 2003, Americans witnessed candlelight vigils, demonstrations, and burning of American flags in South Korea. While this flare-up of anti-Americanism has tapered off, the most exhaustive analysis yet conducted of public opinion data on South Korean attitudes toward the United States shows that such attitudes are quite complex and do raise cause for concern.

"This is no time for complacency about South Koreans' views of the U.S. and the bilateral relationship," according to a new RAND study led by Eric Larson. "There is a deep ambivalence about the presence of U.S. forces. On the one hand, most South Koreans have said that U.S. forces are important to their security, but on the other, they believe that the presence of U.S. forces may impede the pace of reunification with North Korea or adversely affect other goals."

In the figure, fluctuations can be seen across recent polls that have asked South Koreans whether they view the United States favorably or unfavorably. Favorable sentiment plummeted in late February 2002 in reaction to an incident in which a South Korean short-track speed skater lost the Olympic gold medal to an American. The sentiment then rose in the summer of 2002 but bottomed out again in December 2002, following the acquittal of two U.S. soldiers whose armored vehicle had accidentally killed two South Korean schoolgirls.

While the study finds reasons for "cautious optimism" about an upturn of South Korean support for the United States, the study also points to longer-term challenges. One of those challenges is the fact that large numbers of South Koreans with college educations and those in their 20s hold an unfavorable view of the United States and believe America poses a greater threat to their country than North Korea.

Since the number of college-educated South Koreans is growing, there are serious concerns of a further erosion in attitudes toward the United States in the years ahead, a shift that policymakers will need to monitor closely.

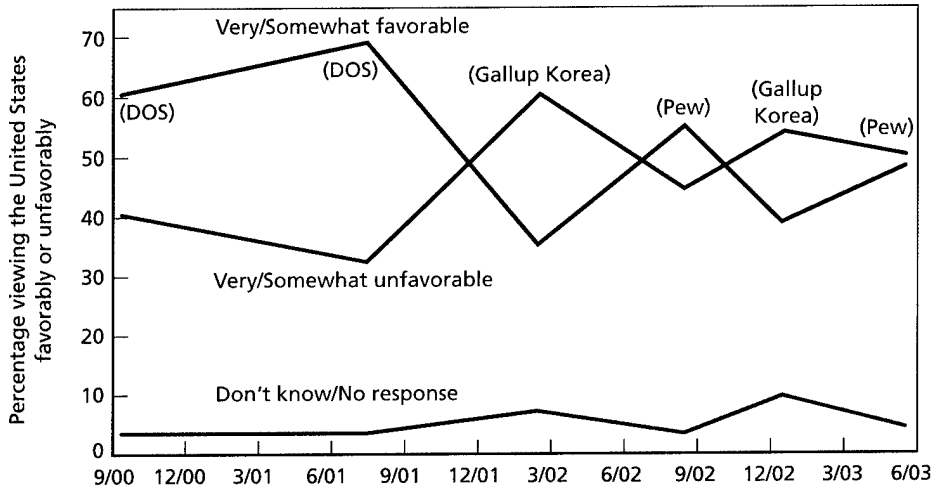
The study recommends some ways to improve South Korean attitudes toward the United States. For one, it suggests exploring various opportunities—from better intelligence sharing to consultations and other mechanisms—to harmonize U.S.–South Korean views on threats and appropriate responses.

Another recommendation is to do more to persuade South Koreans that American interests in the region go beyond the North Korean threat and that the United States has a long-term interest in a peaceful, stable, and economically vital Northeast Asia.

Yet another suggestion is to develop a public diplomacy strategy that focuses on South Koreans' legitimate grievances, while not attempting to change the views of those whose anti-Americanism is ideological and more deeply rooted. ■

For more information: *Ambivalent Allies? A Study of South Korean Attitudes Toward the U.S.* (RAND/TR-141-SRF).

Recent Events Have Affected South Korean Views of the United States



SOURCE: *Ambivalent Allies? A Study of South Korean Attitudes Toward the U.S.*, 2004.
NOTES: DOS = Office of Research, U.S. Department of State. Pew = Pew Research Center for the People and the Press.

Three Trends Foreshadow the Future of Work

Shifting demographic patterns, the pace of technological change, and the path of economic globalization are three trends that "will affect the size, makeup, and skills of the labor force; the kinds of work and its settings; and worker compensation"—according to a new RAND study led by Lynn Karoly.

While the U.S. workforce will continue to grow, it will do so much more slowly than in the past, making it more difficult for employers to recruit workers during periods of strong economic growth (see figure). Firms could try to recruit groups with relatively low labor-participation rates, such as older individuals, women with children, and people with disabilities.

Technological advances will help make this possible. As data are transferred at higher speeds, more employees will be able to participate in such nonstandard work arrangements as telecommuting and flexible scheduling. Another lever that could be used to recruit workers is immigration policy, particularly targeting highly skilled immigrants, thus raising the overall skill level of the U.S. workforce.

Rapid technological change and increasing economic globalization will combine to shape the future workforce and workplace. The workforce will need to be able to adapt to changing technologies and shifting product demand, and the growing importance of knowledge-based work will also favor strong nonroutine cognitive skills, such as abstract reasoning. Lifelong learning—training and retraining that continues well past initial entry into the labor force—will become the norm.

The workplace itself will continue to move toward more decentralized forms of business organization, with a shift away from more-permanent, lifetime jobs toward less permanent, even nonstandard employment relationships (such as self-employment) and work arrangements (such as distance work). Such changes highlight the importance of personally tailored benefit packages and the portability of benefits, the study says.

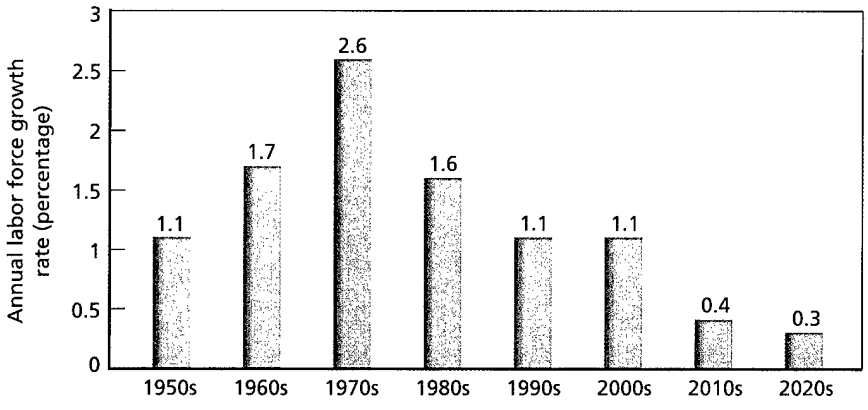
"Alternative workplace arrangements may be particularly attractive to workers who need to balance work and family obligations and may allow for faster workforce growth than what is projected," said Constantijn (Stan) Panis, coauthor of the study.

More employees will be able to participate in such nonstandard work arrangements as telecommuting and flexible scheduling.

From a policy perspective, many of the institutional features of the U.S. labor market—such as the laws and regulations that govern employment—evolved in an earlier era. Given current trends and their implications, some policies may need to be reexamined. ■

For more information: *The 21st Century at Work: Forces Shaping the Future Workforce and Workplace in the United States* (RAND/MG-164-DOL).

U.S. Workforce Will Grow Much More Slowly Than in the Past



SOURCE: "A Century of Change: The U.S. Labor Force, 1950–2050," *Monthly Labor Review*, Vol. 25, No. 5, May 2002, pp. 15–28, Mitra Toossi.
NOTES: The slowing workforce growth rate is caused primarily by a 25-percent decline in the birthrate that followed the end of the baby boom in the mid-1960s, coupled with a trend toward earlier retirement by men. The influx of women and immigrant workers into the workforce has counteracted these forces so that the workforce has continued to expand, albeit at a much slower rate. After 2010, the aging of the workforce is expected to reduce the overall labor participation rate even more.

High Standards or No Standards?
The Unclear Implications of "No Child Left Behind"

WHEN THE NO CHILD LEFT BEHIND (NCLB) Act was passed into law in January 2002, it heralded the beginning of one of the most expansive efforts to reform public education in a generation. Grounded in the need to hold educators responsible for student achievement, NCLB consists of a system of goals (desired student performance), assessments (to measure whether the goals are attained), and incentives (both "carrots" to motivate educators to achieve the goals and "sticks" to punish educators if they don't).

Although the law passed Congress with overwhelming bipartisan support, concerns have grown—from scattered grumbles in the early years to a groundswell of grievances—as educators begin to grapple with the reality of implementing the law at the state and local levels. Some school districts have filed lawsuits, while other districts have turned down federal money for schools to avoid federal sanctions. Some Republican legislators have complained to the White House that the law violates states' rights. Growing state pressure has had an effect, which is reflected in recent policy changes by the U.S. Department of Education to make it easier for school districts that have large numbers of students with limited English proficiency to meet their yearly progress goals.

It is within this increasingly contentious environment that Robert L. Linn, professor of education at the University of Colorado and codirector of the National Center for Research on Evaluation, Standards, and Student Testing, came to RAND to talk about his impressions of NCLB.

Deficient Meanings of "Proficient"

Linn argued that performance standards to determine proficiency are essential in many *professional* cases, such as for licensure and certification, where the content to be tested is fairly straightforward and the goal is to protect the public from unqualified practitioners. But when it comes to setting *educational* performance standards in terms of proficiency levels—a fundamental premise of NCLB—Linn raised serious concerns.

Linn traced the current drive toward setting proficiency levels to efforts associated with the National Assessment of Educational Progress (NAEP), known as "the nation's report card," during the 1990s. Driven to set "high standards" by concerns about the United States falling behind other countries educationally, NAEP tests in 1990 defined "proficiency" in mathematics in grades 4, 8, and 12 as scoring at the 87th, 85th, and 88th percentiles, respectively.

Therefore, only 12–15 percent of the students taking the nationally standardized NAEP tests could claim proficiency in 1990. Since its passage in 2002, NCLB has required that increasingly higher proportions of students in each state score at the levels attained by only 12–15 percent of the students in 1990. NCLB requires that fully 100 percent of students attain "proficiency" by the year 2014.

Such high performance standards are supposed to specify "how good is good enough," said Linn. But he argued that such "cut scores," which leave students either falling above or below the "cut" for the designated standard, leave unanswered the question "good enough for what?" What does it really mean, for example, to be "proficient" in mathematics in the fourth grade?

"Incredible" Variability Among States

Understanding what "proficient" means becomes virtually impossible, he continued, because of an even bigger problem: the "incredible" variability both in the starting points that states establish for themselves and in the failure rates, based on the noncomparable "cut" rates that states report for themselves using their own statewide tests.

To begin with, there is variability between what some states have set as their own proficiency levels (on state tests) and their NAEP proficiency levels. For

There is enormous variability in the process of measuring proficiency.

example, Colorado has established a proficiency level for fourth-grade mathematics that designates nearly 80 percent of the students as "proficient," using the standards of the statewide test. However, results from the 2003 NAEP test reveal that only 34 percent of Colorado fourth-graders are proficient in mathematics, using the NAEP definition.

Linn then compared the starting points established by 34 states for fourth-grade reading. He showed that some states, like California, have set very stringent standards for proficiency (where only 14 percent currently meet the statewide standard), while other states, like Colorado, have set very lenient standards (where about 78 percent meet the statewide standard). This 64-percent range across the state test results dwarfs the range of NAEP test results for fourth-grade reading proficiency across all of the states. The national range on the 2003 NAEP tests is only 25 percent.

Finally, Linn said there is enormous variability in the process of measuring proficiency, even when using standardized national tests. For example, failure rates assigned to the same reading tests ranged from 9 to 30 percent among different panels of judges, while failure rates assigned to the same mathematics tests ranged from 14 to 71 percent among different panels of judges. The variability arises partly because the judges themselves—panels of teachers, school administrators, and counselors—have different qualifications.

Different tests also make a difference. Linn referred to a 2003 study that compared the results from NAEP with the results from three other nationally administered tests. Although the NAEP test for fourth-grade reading showed 31 percent of students as proficient, the three other tests scored the national proficiency rates at 24 percent, 40 percent, and 55 percent, respectively.

Balloon Payments Loom

The cornerstone of NCLB is "accountability." Educators not only must set performance standards for basic, proficient, and advanced levels of achievement but must also demonstrate "adequate yearly progress," or AYP, toward meeting those standards by 2014.

Unfortunately, as Linn argued, no state has shown progress rates that would project anything close to becoming 100-percent proficient in 20 years—much less in 10. Once again, there is vast variation across states. In 2003, Kentucky reported that fewer than 5 percent of its schools missed the state's AYP goals, while Florida reported that nearly 80 percent of its schools missed the AYP goals. This variation has multiple causes, including state demographics, number of grades tested, whether states use confidence intervals, and, of course, how the states define "proficient."

AP/WIDE WORLD PHOTOS/RIC FELD

Doomed to "fail"? Third graders from the Lovett School, in Atlanta, gather on the state capitol steps in May 2003 for the announcement of the approval of Georgia's accountability system aligned with the No Child Left Behind Act.

To make matters worse, states have chosen a stair-step approach toward meeting their ultimate AYP goals. Instead of moving incrementally forward (and upward) from their AYP starting points from year to year, states have chosen to move flatly across the same proficiency level for a couple of years and then abruptly up. Linn likened this approach to making no payments on a loan for two years and then having a balloon payment in the third year.

Although there is a legitimate interest in measuring progress in student achievement, Linn concluded that performance standards are not essential for this purpose. He strongly favors other ways to measure progress. One of these ways involves using "norms."

With norms, a fourth grader's score on a math test, for example, is compared against the average performance of fourth graders on the same test. The average performance is defined as the normal performance. Comparable to "grading on a curve," norms went out of favor with the advent of proficiency standards.

For now, Linn recognized that state and federal laws mandate standards-based reporting and therefore recommended some ways to improve the process. These ways include ensuring that state standard-setters both realize how their standards will be used and understand the comparative information about the different standards used in other states. ■

Five Pillars of Democracy

How the West Can Promote an Islamic Reformation

By Cheryl Benard

Cheryl Benard is a senior political scientist at RAND.

Rival versions of Islam are contending for spiritual and political dominance, with immense implications for the rest of the world. By understanding the ongoing ideological struggle within Islam and by distinguishing among the competing strains of Islamic thought, Western leaders can identify appropriate Islamic partners and work with them to discourage extremism and violence as well as to encourage democratization and development.

The notion that the outside world should try to nurture a moderate, democratic version of Islam has been in circulation for decades but gained great urgency after Sept. 11, 2001. There is broad agreement that this is a constructive approach. Islam inspires a variety of ideologies and political actions, some of which are inimical to global stability. It therefore seems sensible to foster the strains within Islam that call for a more moderate, democratic, peaceful, and tolerant social order.

It is no easy matter to transform a major world religion. If "nation-building" is a daunting task, "religion-building" is immeasurably more perilous and complex. Islam is neither a homogeneous entity nor a self-contained system. Many extraneous issues and problems have become entangled with the religion. Many political actors in the Muslim world deliberately seek to "Islamize" the debate in a way that they think will further their goals.

If "nation-building" is a daunting task, "religion-building" is immeasurably more perilous and complex.

The current crisis in Islam has two main components: a failure to thrive on its own terms and a loss of connection to the global mainstream. The Islamic world has been marked by a long period of backwardness and comparative powerlessness. Many homegrown solutions—such as nationalism, pan-Arabism, Arab socialism, and Islamic revolution—have been attempted without success, leading to frustration and anger. Meanwhile, the Islamic world has both fallen out of step with contemporary global culture and moved increasingly to the margins of the global economy, creating an uncomfortable situation for both sides.

Muslims disagree on what to do about the crisis, what has caused it, and what their societies ultimately should look like. For the West, the question is which ideology (or ideologies) to support; with what methods; and with what concrete, realistic goals in mind.

An Ideological Spectrum

There are essentially four ideological positions in the Muslim world today: fundamentalist, traditionalist, modernist, and secularist. Each group contains subgroups that blur the distinctions among the primary groups. It is important for Western leaders to understand the differences *within* groups as well as *among* groups.

Fundamentalists reject democratic values and contemporary Western culture. They want an authoritarian, puritanical state to implement their extreme view of Islamic law and morality. They are willing to use innovation and modern technology. They do not shy away from violence.

There are two strands of fundamentalism. One, grounded in theology and usually rooted in a religious establishment, belongs to the *scriptural fundamentalists.* This group includes most of the Iranian revolutionaries, the Saudi-based Wahhabis, and the Kaplan congregation of Turks. The *radical fundamentalists*, in contrast, are much less concerned with the literal substance of Islam, with which they take considerable liberties either deliberately or because of ignorance of orthodox Islamic doctrine. Al Qaeda, the Afghan Taliban, Hizb-ut-Tahrir, and a large number of other Islamic radical movements and diffuse groups worldwide belong to this category.

Traditionalists want a conservative society. They are suspicious of modernity, innovation, and change. They are also divided into two groups. The distinction is significant.

The *conservative traditionalists* believe that Islamic law and tradition ought to be rigorously and literally followed. They see a role for the state and for the political authorities in encouraging or at least facilitating this. However, they do not generally favor violence and terrorism. They concentrate their efforts on the daily life of society. Their goal is to preserve orthodox norms and values and conservative behavior to the fullest extent possible. Their posture is one of resistance to change. The temptations and the pace of modern life are seen as posing major threats.

The *reformist traditionalists* believe that Islam, to remain viable and attractive throughout the ages, must be prepared to make some concessions in the application of orthodoxy. They are prepared to discuss reforms and reinterpretations. Their posture is one of cautious adaptation to change, being flexible on the letter of the law to conserve the spirit of the law.

Modernists want the Islamic world to become part of global modernity. They want to reform Islam to bring it into line with the modern age. They actively seek far-reaching changes to the current orthodox understanding and practice of Islam. They want to jettison the burdensome ballast of local and regional tradition that, over the centuries, has intertwined itself with Islam.

They further believe in the historicity of Islam—that Islam as it was practiced in the days of the Prophet reflected eternal truths as well as historical circumstances that were appropriate to the time but are no longer valid. They believe that the essential core of Islamic belief not only will remain undamaged but will be strengthened by changes, even very substantial changes, that reflect changing times, social conditions, and historical circumstances. Their core values—the primacy of the individual conscience and of a community based on social responsibility, equality, and freedom—are easily compatible with modern democratic norms.

AP/WIDE WORLD PHOTOS/EPA/FEHIM DEMIR

An Islamic "borderline" leader between modernizing traditionalism and modernism, Bosnian Muslim Imam Mustafa Ceric, right, joins Bosnian Cardinal Vinko Puljic for a Christmas gathering in Sarajevo on Dec. 26, 2003.

Secularists want the Islamic world to accept a division of mosque and state in the manner of Western industrial democracies, with religion relegated to the private sphere. They further believe that religious customs must be in conformity with the law of the land and human rights. The Turkish Kemalists, who placed religion under the firm control of the state, represent the secularist model in Islam.

These positions should be viewed as segments on a continuum, rather than divergent categories. There are no clear boundaries among them. Some traditionalists overlap with fundamentalists. The most modernist of the traditionalists are almost modernists. The most extreme modernists are similar to secularists. At the same time, the groups hold distinctly different positions on issues that have become contentious in the Islamic world today, including political and individual freedom, education, the status of women, criminal justice, the legitimacy of reform and change, and attitudes toward the West.

An Agenda for Reform

What the roiling ideological ferment requires from the West is both a firm commitment to fundamental Western values and a sequence of flexible postures suited to different Islamic contexts, populations, and countries.

AP/WIDE WORLD PHOTOS/EPAYKERIM OKTEN

Whirling dervishes dance in the Mevlana dance hall in Konya, Turkey, on Dec. 17, 2003, the 730th anniversary of the death of Sufi poet Mevlana Jalal al-din Rumi. Through its poetry, music, and philosophy, Sufism can bridge religious affiliations within and beyond Islam.

This approach could help to develop civil, democratic Islam while giving the West the versatility to deal appropriately with different settings.

The following outline describes what such a strategy might look like. It rests on "five pillars of democracy" for the Islamic world. The pillars correspond to the postures that the West should take toward the four ideological groups and toward ordinary citizens in Muslim countries.

1. Support the modernists first, promoting their version of Islam by equipping them with a broad platform to articulate and to disseminate their views. It is tempting to choose the traditionalists as the primary agents for fostering democratic Islam, and this appears to be the course that the West is inclined to take. However, some very serious problems argue against taking such a course.

Overendorsing the traditionalists could undermine the ongoing internal reform effort within Islam and hinder those—the modernists—whose values are genuinely compatible with our own. Of all the groups, the modernists are the most congenial to the values and spirit of modern democratic society. We need to advance their vision of Islam over that of the traditionalists.

Modernism, not traditionalism, is what worked for the West. This included the necessity to depart from, modify, and selectively ignore elements of the original religious doctrine. The Old Testament is not different from the Koran in endorsing conduct and containing a number of rules and values that are unthinkable, not to mention illegal, in modern society. This does not pose a problem in the West, because few people today would insist that we should all be living in the exact literal manner of the Biblical patriarchs. Instead, we allow our vision of the true message of Judaism or Christianity to transcend the literal text, which we regard as history and legend. That is exactly the approach proposed by Islamic modernists.

Secularists are also close to the West in terms of their values and policies. But some secularists are unacceptable to the West because of their reflexive anti-Americanism or other positions. The secularists also have trouble appealing to the traditional sectors of an Islamic audience.

For these reasons, the modernists are the best partners for the West. Unfortunately, they are generally in a weaker position than the fundamentalists and traditionalists, lacking powerful backing, financial resources, an effective infrastructure, and a public platform. Therefore, Western leaders should support the modernists by these means:

- Publish and distribute their works at subsidized cost.
- Encourage them to write for mass audiences and for youth.
- Introduce their views into the curriculum of Islamic education.
- Make their religious opinions and judgments available to a mass audience to compete with the fundamentalists and traditionalists, who have web sites, publishing houses, schools, institutes, and many other vehicles for disseminating their views.
- Position modernism and secularism as counterculture options for disaffected Islamic youth.
- Use the media and educational curricula in suitable countries to foster an awareness of their pre-Islamic and non-Islamic histories and cultures.

2. Support the traditionalists enough to keep them viable against the fundamentalists (if and wherever those are the only choices). Among the traditionalists, the West should embolden those who are the relatively better match for modern civil society: the *reformist* traditionalists. The West should support the traditionalists against the fundamentalists in these ways:

- Publicize traditionalist criticism of fundamentalist violence and extremism.
- Encourage disagreements between traditionalists and fundamentalists.
- Discourage alliances between traditionalists and fundamentalists.
- Encourage cooperation between modernists and reformist traditionalists.
- Where appropriate, educate the traditionalists to debate the fundamentalists. Fundamentalists are often rhetorically superior, while traditionalists practice a politically inarticulate "folk Islam." In

places such as Central Asia, traditionalists may need to be trained in orthodox Islam to be able to stand their ground against fundamentalists.
- Increase the presence and profile of modernists in traditionalist institutions.
- Encourage the traditionalists who support the Hanafi school of Islamic law as a way to counter the conservative Wahhabi-supported Hanbali school of Islamic law.
- Encourage the popularity and acceptance of Sufism, a traditionalist form of Islamic mysticism that represents an open, intellectual interpretation of Islam.

3. Oppose the fundamentalists energetically by striking at the vulnerabilities in their Islamic and ideological credentials. Expose things that neither the youthful idealists in their target audience nor the pious traditionalists can condone about the fundamentalists: their corruption, their brutality, their ignorance, the bias and manifest errors in their application of Islam, and their inability to lead and to govern. The West should fight the fundamentalists in these ways:
- Challenge their interpretation of Islam, and expose their inaccuracies.
- Reveal their linkages to illegal groups and activities.
- Publicize the consequences of their violent acts.
- Demonstrate their inability to develop their countries and communities in positive ways.
- Target the messages to youth, pious traditionalists, Muslim minorities in the West, and women.
- Portray violent extremists and terrorists accurately as disturbed and cowardly, not as heroes.
- Encourage journalists to investigate corruption, hypocrisy, and immorality in fundamentalist and terrorist circles.
- Encourage divisions among fundamentalists.

One strategy holds great promise. Despite the success of radical fundamentalism in mobilizing discontented young people, especially young men, it has many features that should turn young people away. This major flaw in fundamentalist political strategy has not so far been exploited.

Radical Islam does not value young lives very highly. By manipulating youthful idealism and their sense of drama and heroics, radical Islam turns young people into cannon fodder and suicide bombers. Madrassas (the fundamentalist schools) specifically educate boys

Modernism, not traditionalism, is what worked for the West.

to die young, to become martyrs. If Muslim youth ever begin to look at things through a generational lens, as Western youth did in the 1960s, they may begin to ask why most suicide bombers and martyrs are under the age of 30. You don't have to be young to strap explosives onto yourself. If it's such a wonderful thing to do, why aren't older people doing it?

4. Support the secularists on a case-by-case basis. The West should encourage secularists to recognize fundamentalism as a common enemy and discourage secularist alliances with anti-U.S. forces. The West should also support the idea that religion and state can be separate in Islam, too, and that the separation will not endanger the faith but, in fact, can strengthen it.

5. Develop secular civic and cultural institutions and programs. Western organizations can help to develop independent civic organizations that can provide a space in the Islamic world for ordinary citizens to educate themselves about the political process and to articulate their views.

Any strategy of this sort should be pursued with a wariness of the potential for backlash. The alignment of U.S. policymakers with particular Islamic positions could endanger or discredit the very groups and people the West is seeking to help. Partnerships that may seem appropriate in the short term, such as affiliations with conservative traditionalists, could provoke unintended consequences in the long term. To prevent this, the West needs to adhere consistently and faithfully to its core values of democracy, equality, individual freedom, and social responsibility. ■

Related Reading

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Redefining Counterterrorism

The Terrorist Leader as CEO

By Bruce Hoffman

Bruce Hoffman, director of RAND's Washington office and acting director of the RAND Center for Middle East Public Policy, is among the world's foremost authorities on terrorism.

Killing Osama bin Laden will not quash the terrorist threat from al Qaeda, because the group sees the war it started as an epic struggle lasting years if not decades. The group has shown itself to have a deeper "bench" than was previously thought and to have some form of "corporate succession" plan. In fact, the closest organizational relative to al Qaeda is perhaps a private multinational corporation. And bin Laden himself is perhaps best viewed as a terrorist CEO.

He has applied business administration and modern management techniques learned both at the university and in the family's construction business to the running of a transnational terrorist organization. He obtained a degree in economics and public administration in 1981 from Saudi Arabia's prestigious King Abdul Aziz University. He then cut his teeth in the family business, honing the management and organizational skills that later enabled him to transform al Qaeda into the world's preeminent terrorist movement.

He has implemented for al Qaeda the same type of effective organizational framework adopted by many corporate executives throughout much of the industrialized world over the past decade. Just as large, multinational business conglomerates moved during the 1990s to flatter, networked structures, bin Laden did the same with al Qaeda.

He defined a flexible strategy for the group that functions at multiple levels, using both top-down and bottom-up approaches. On the one hand, he has functioned like the president or CEO of a large multinational corporation by defining specific goals, issuing orders, and ensuring their implementation. This function applies mostly to the al Qaeda "spectaculars"—those high-visibility, usually high-value, and high-casualty operations like 9/11, the attack on the USS *Cole*, and the 1998 east Africa embassy bombings.

On the other hand, he has operated as a venture capitalist by soliciting ideas from below, by encouraging creative approaches and out-of-the-box thinking, and by providing funding to those proposals he finds promising. Several attacks by groups affiliated with al Qaeda attest to this approach. The attacks include those staged by Jemaah Islamiyah in Bali in October 2002 and Jakarta in August 2003; by al-Assiriyat al-Moustaqim in Morocco in May 2003; and by the Islamic Great Eastern Raiders Front in Turkey in November 2003.

Al Qaeda deliberately has no single, set *modus operandi*—which makes the group all the more resilient and formidable. Instead, bin Laden built a movement that actively encourages subsidiary groups fighting under the corporate banner to mix and match approaches, employing different tactics and varying means of attack and operational styles in a number of locales.

Al Qaeda deliberately has no single, set modus operandi.

Even in the post 9/11 era, when al Qaeda has been relentlessly tracked, harassed, and weakened, the corporate succession plan seems to have functioned. The group appears to retain at least some depth in numbers as evidenced by its replenishment abilities to produce successor echelons for the mid-level operational commanders who have been killed or captured.

The U.S. Congress has put the number of persons trained at al Qaeda camps in Afghanistan, Sudan, and Yemen at some 70,000–120,000 worldwide. Even if this figure is grossly exaggerated, the potential pool of even a few thousand well-trained and battle-hardened fighters ensures a sufficiently deep well of expertise from which to continue to draw.

In terms of al Qaeda's finances, sufficient monetary reserves likely still exist. According to one estimate, some $130 million of identifiable al Qaeda assets have been seized or frozen to date. Given that bin Laden amassed a war chest of as yet undetermined dimensions, ample funds may still be at the disposal of his minions.

At one point, bin Laden was reputed to own or control some 80 companies around the world. In Sudan alone, he owned the country's most profitable businesses, including construction, manufacturing, currency trading, import-export, and agricultural enterprises. Not only did many of these regularly turn a profit, but the profit was then funneled to al Qaeda cells that operated largely as self-sufficient, self-reliant terrorist entities in the countries within which they operated.

Al Qaeda's resiliency and longevity are predicated not on the total number of jihadists that it might have trained in the past but on its continued ability to recruit, to mobilize, and to animate both actual and would-be fighters, supporters, and sympathizers. It is significant that, despite the punishment meted out to al Qaeda over the past 30 months, it remains a potent terrorist threat and destabilizing force in world affairs.

Underpinning al Qaeda's worldwide operations is bin Laden's vision, self-perpetuating mythology, and skilled acumen at effective communications. His message is simple. According to his propaganda, the United States is a hegemonic, status quo power that opposes change and props up corrupt and reprobate regimes that would not exist but for American backing.

There is no doubt that the United States and other governments have made significant progress in the war against global terrorism in recent months. Airports and planes are far better protected. Likely targets are surrounded by new barriers and other security measures.

AP/WIDE WORLD PHOTOS

Indonesians pray for the victims at the site of the Marriott Hotel bombing in Jakarta on Aug. 9, 2003, four days after the suicide car bombing by the al Qaeda–linked group Jemaah Islamiyah killed 11 people.

Many terrorists are in prison or in graves as a result of counterterrorism work by the United States and its allies.

But all that al Qaeda needs is one new successful attack. Governments appear to be only as good as their last failure. No matter how many attacks are prevented, no matter how many people are not killed daily by terrorists, what is remembered is the small number of attacks that succeed.

The epic battle launched by bin Laden is not over. If anything, because of what al Qaeda sees as America's global war on Islam (in Afghanistan and Iraq) and as America's commitment to ensuring the longevity of morally bankrupt regimes (in Egypt, Saudi Arabia, the Persian Gulf, Pakistan, Uzbekistan, and elsewhere), al Qaeda's commitment and sense of purpose today are arguably greater than ever. The group's stock has evidently not plummeted among its investors. These factors point to a long struggle ahead in the war against al Qaeda's brand of corporate terrorism. ■

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Redefining the Enemy

The World Has Changed, But Our Mindset Has Not

AP/WIDE WORLD PHOTOS/EPA/AKHTAR SOOMRO

Pakistani supporters of a religious party alliance known as Muttihida Majlis-e-Ammal shout anti-Musharraf slogans during a rally in Karachi, Pakistan, on March 26, to protest the Pakistani army operation against gunmen believed to be sheltering al Qaeda leaders near the Afghan border.

By Brian Michael Jenkins

Brian Michael Jenkins is a senior adviser to the president of the RAND Corporation and one of the world's leading authorities on international terrorism.

The end of the Cold War fundamentally changed the security environment, which changed further on 9/11 and yet again as a consequence of the war in Iraq. We in the United States have created new institutions to preserve our security. We have invented new approaches to how we conduct military operations, from the war in Afghanistan to the pursuit of al Qaeda to the occupation of Iraq. But we have yet to digest the full impact of these changes, seeing them as temporary tactical deviations, exotic interludes. We have barely begun to reexamine our obsolete assumptions about the way our enemies organize and operate.

We wage a "global war on terror"—a confusing conflation of threats—while we continue to concentrate on future conventional wars with hypothetical, nation-state foes. We still consign all "lesser contingencies" to the "other war" as opposed to the "real war." We still tend to view the enemy through the narrow bores and restricted optics of our existing national security structure. The 9/11 Commission hearings

reveal the difficulty we have in addressing foes that fall outside our normal field of vision. We tend to focus on what we can hit with our capabilities.

Our imagination fails us when it comes to low-tech, high-consequence attack scenarios. At the other end of the spectrum, I believe that we overestimate the readiness of even those we label "rogue states" to provide uncontrolled terrorists with weapons of mass destruction. At the same time, we cling to the comforting notion that terrorists cannot ascend above a certain level of violence without state support, that al Qaeda could not have done 9/11 on its own and certainly could not acquire a nuclear capability without government sponsorship.

While we argue whether organized crime would participate in a nuclear black market (which, in fact, would never operate like a traditional black market), we miss the more complex wildcat operation of Pakistan's senior nuclear scientists. We tend to treat drug traffickers and terrorists as a single hyphenated foe—another simplistic conflation, albeit one that was useful in overcoming the equally mistaken notion that the United States could assist in combating the drug traffic in Colombia without countering the insurgents financed by it. But then priorities change, and we ignore the vital role of the drug traffic in central Asia as we single-mindedly pursue terrorists.

We continue to debate whether terrorism should be treated as war or as crime, with military force or through law enforcement. We underestimate the power of militarily inferior foes, tribal loyalties, difficult terrain, religious conviction, unceasing hostilities, gruesome images broadcast on television, and other unconventional measures of power.

It is time for us to take a deliberately unconventional, broad, and inclusive approach. The objective here is to avoid depicting the enemy as a convenient mirror image of our existing organization, missions, capabilities, and preferences, and instead to sketch a dynamic group portrait of the foes we are already dealing with today and will be dealing with for the foreseeable future. My intention is not to argue for one threat over another. No single scenario predominates. That is the point.

New World Disorder

For the United States, the enemy or—more correctly—the enemies we face have changed fundamentally over the past decade. In addition to a few hostile or potentially hostile states, our enemies include terrorists, weapons proliferators, organized crime affiliates, drug traffickers, and cyberoutlaws. In some circumstances, we may find ourselves confronting embittered factions motivated by longstanding religious, ethnic, or tribal conflicts. The enemies of yesterday were static, predictable, homogeneous, rigid, hierarchical, and resistant to change. The enemies of today are dynamic, unpredictable, diverse, fluid, networked, and constantly evolving.

We underestimate the power of militarily inferior foes, tribal loyalties, difficult terrain, religious conviction, unceasing hostilities, gruesome images broadcast on television, and other unconventional measures of power.

There is no single military power that can match the United States, but the diverse adversaries pose an array of security challenges. Each one is unique, requiring great adaptability on our part. Predictability, which all institutions seek, is not on the horizon. Responses dictated by military doctrine will not work.

Today's foes do not threaten the global devastation that would result from an all-out nuclear exchange—the paramount concern during the Cold War—but their capabilities could nonetheless ascend to disastrous levels of destruction. And, because of the greater likelihood of their initiating hostile action, today's foes, were they able to obtain even primitive weapons of mass destruction, may be considered even more dangerous than would those of yesterday.

Meanwhile, borders have dissolved. There are no front lines. There are no noncombatants. Our defenses begin abroad but do not end at our borders. Our defenses must continue within our own territory. Increasingly, our foes operate not on conventional battlefields but in a gray area where traditional notions of crime and armed conflict overlap.

In the case of international terrorism, we in America originally viewed the problem as primarily a law enforcement one, seeking the cooperation of the international community either in outlawing and preventing attacks against certain targets (commercial aviation, diplomats, and diplomatic facilities) or in preventing the use of certain tactics like taking hostages, while asserting our legal jurisdiction either to apprehend ter-

AFP/GETTY WORLD PHOTOS/JOE RAEDLE

Tamil Tigers, who have been battling Sri Lankan soldiers for 20 years, march in eastern Sri Lanka. A peace process broke down in March when a rebel commander broke ranks with rebel leadership.

rorists abroad or to use military force in response to terrorist attacks. Since Sept. 11, 2001, we have treated international terrorism more as a form of war, although we still depend heavily on law enforcement, here and abroad, to apprehend individual terrorists. We should be learning that we cannot choose between one or the other, either law enforcement or war. Effectively responding to the foes we face requires orchestrating activities in both dimensions. In addition, we need to invent some entirely new—for us, at least—concepts.

The threats we face today are likely to engage us for many years. Chronic conflicts lasting decades persist in several parts of the world: Burma, Colombia, India, Peru, the Philippines, Sudan, Sri Lanka, and the Basque region of Spain. In a similar fashion, our terrorist foes see war as a perpetual condition. They are determined to beleaguer us, destroy our domestic tranquility, disrupt our economy, make our lives untenable. For Americans, accustomed to thinking of war as a finite undertaking, the notion of permanent war is especially hard to accept.

Political, economic, and technological developments during the past 15 years have also fundamentally altered the ecology of armed conflict and crime. The end of the Cold War and the collapse of the Soviet empire, the globalization of the economy, and the rapid development of information technologies have generated new causes of conflict, created new vulnerabilities, and provided adversaries with new capabilities. Consequently, we now face a far more complex tapestry of intractable threats:

- large-scale terrorist attacks that may take place anywhere in the world, including the U.S. homeland
- the continuing development in some countries of weapons of mass destruction and the possibility that these may come into the hands of political or criminal gangs
- chronic warfare that in some countries has become a lucrative economic enterprise
- local and regional ethnic and tribal conflicts that may suddenly erupt in genocide and humanitarian disasters or that may preserve chaotic ungoverned badlands where warlords and terrorists find refuge
- increasingly globalized organized crime engaged in drug trafficking, the smuggling of human beings, and possibly trafficking in the ingredients of weapons of mass destruction
- the exploitation of the Internet by criminals or terrorists
- the potential for sophisticated remote sabotage.

AP/WIDE WORLD PHOTOS/PAUL BOURDRAS

Demonstrators in Casablanca, Morocco, protest against terrorism on May 25, 2003, following the May 16 attacks that targeted Jewish and Spanish sites in the city, killing 43 people.

All of these threats have been elevated to the level of national security concerns, meriting the employment of military assets, at times requiring military intervention even in cases where U.S. security may not be directly threatened. Of particular importance to those charged with national security, these threats do

not align with how we have organized ourselves—our military assets, our troops, our planning scenarios—to deal with national security.

We have begun to adapt, as evidenced by structural adjustments within the government: the merger of several departments to create a separate department for homeland security, the erection of "scaffolds" (such as the Terrorist Threat Integration Center) to bridge gaps between institutions, the creation of entirely new entities like the Transportation Security Agency and the Pentagon's new North America Command, the continuing exhortations to improve information sharing and interdepartmental cooperation, and talk about additional new entities to address specific tasks now performed with difficulty by existing institutions—an MI5 for America, modeled on the British security service. We have reconfigured our institutions to better address "the spaces in between," but we have been far more reluctant to tamper with the basic institutions themselves. We have not fundamentally changed our habits of thought.

Most of the threats also transcend national frontiers, demonstrating the limits of protection that any national government can provide to its citizens. Combating the threats will require sustained political will and a level of international coordination that remains to be achieved. But how much coordination can be achieved without affecting the core element of sovereignty? Our European allies are struggling with this issue now.

AP/WIDE WORLD PHOTOS/PAUL WHITE

Firefighters retrieve bodies from a bombed passenger train in Madrid on March 11. Several explosions on trains killed 192 rush-hour commuters and wounded more than 1,400 in Spain's worst terrorist attack ever.

We have reconfigured our institutions to better address "the spaces in between," but we have been far more reluctant to tamper with the basic institutions themselves. We have not fundamentally changed our habits of thought.

War Beyond the Cold War

The U.S. armed forces today naturally continue to train for war with an enemy that could pose a direct military challenge—the potential "near-peers." The most frequently mentioned candidates are a powerful and hostile China or a revived revanchist Russia, although their need for stability and economic growth make war with either seem unlikely.

On the next tier down, in our hierarchy of standard planning scenarios, are regional powers like North Korea or potentially Iran. These countries now or may soon possess strategic weapons that could directly threaten U.S. territory.

But while looking toward enemies who might aspire to fight on our terms, the armed forces actually fight a very different set of battles: a bloody resistance movement in Iraq; a combination of the Taliban, al Qaeda, and warlords in Afghanistan; a worldwide manhunt for the leaders of al Qaeda. Then there are those conflicts that do not directly threaten our national security but require military force to rescue or protect American citizens, restore order, apprehend an accused war criminal or an indicted head of state, prevent ethnic cleansing, retaliate for acts of terrorism, or hunt for terrorist leaders.

Such operations account for most of the U.S. military interventions in the last quarter century: Lebanon, Grenada, Libya, Iran, Panama, Iraq, Somalia, Bosnia, Haiti, Kosovo, Afghanistan, Sudan, the Philippines, Liberia, and now Haiti again. Future scenarios could see civil war in Iraq, collapse in Afghanistan, chaos in North Korea or post-Castro Cuba, a coup in Pakistan or Saudi Arabia, U.S. hostages taken in Colombia, or possibly some disaster that causes a collapse in Mexico, sending a tidal wave of desperate refugees streaming north.

Future scenarios could see civil war in Iraq, collapse in Afghanistan, chaos in North Korea or post-Castro Cuba, a coup in Pakistan or Saudi Arabia, U.S. hostages taken in Colombia, or some disaster that causes a collapse in Mexico.

Often in such cases, we will be confronting petty tyrants and local warlords commanding inferior but vicious militias, engaged in ethnic or tribal conflict, or dedicated to war as a profitable enterprise, while hundreds of thousands of civilian victims clamor for protection. Our enemies will not be nations or armies but small groups of individuals or angry mobs. To respond to them will require adaptability and rapidly mobilized, specialized local knowledge.

In terms of intelligence, we need to be able to get smart fast. We need the capability for networked, multilateral threat analysis—comparable to "real-time intelligence on the battlefield"—to generate information that can be packaged and used quickly by a soldier in Afghanistan, a magistrate in France, a cop in Singapore, a Marine in Haiti. We do not yet have this capability.

Countering Proliferation

At one time I would have argued that there was a firebreak between weapons proliferation at the national level and potential terrorist use of weapons of mass destruction. Historically, terrorists seldom sought mass casualties. Morality and self-image plus practical concerns about group cohesion, alienating perceived constituents, or provoking popular crackdowns constrained their violence.

Iraqi men cheer as an American Humvee burns. It came under attack during a shootout in the Iraqi town of Fallujah on March 25.

As we have seen, however, these self-imposed constraints, which were never universal or immutable, eroded significantly in the last decade of the 20th century, especially among those inspired by religious ideologies, which, in their view, provided God's mandate. Large-scale indiscriminate violence became more common, while some groups sought more exotic means of inflicting death and causing alarm.

A cult in Japan unleashed nerve gas in Tokyo's subways, but not before it had experimented with biological weapons and made inquiries about the availability of nuclear weapons in Russia. The avatars of al Qaeda and Jemaah Islamiyah have shown persistent interest in chemical, biological, radiological, and nuclear weapons. Fortunately, their capabilities still trail their ambitions. We are most likely to see crude scenarios in which the psychological effects vastly exceed the actual casualties, but weapons of mass destruction have entered the terrorists' imagination, if not yet their arsenal.

It is still wrong to conflate national proliferation efforts with terrorist ambitions to acquire weapons of mass destruction. Dictators of rogue states that acquire nuclear weapons seem unlikely to turn them over to uncontrolled terrorists except perhaps as part of an Armageddon defense. However, proliferation at the state level does indirectly facilitate terrorist acquisition through the spread of know-how and arsenals. Ironically, though, successfully shutting down weapons research may also promote underground proliferation. Rogue scientists, deprived of opportunities in national programs—as in Russia, Iraq, or Libya—may seek other profitable outlets for their expertise. While some scientists may seek compensation, others may look for revenge. This is the stuff of scary novels, but the distance between what we read on airplanes and what we read in intelligence estimates has narrowed.

The imperative to destroy weapons of mass destruction has been complicated by the trend toward smaller groups of adversaries—and by our responses to them. As a consequence of perceived U.S. intelligence failures in Iraq, it will now be very difficult to mobilize support for military intervention aimed at regime change for the stated purpose of neutralizing weapons of mass destruction. Preemption in the future may instead need to be aimed at specific facilities to be investigated or destroyed, specific shipments of material

to be intercepted, or specific individuals to be targeted. To support these missions will place even greater demands on intelligence, accuracy, speed, and precision. Waiting too long to act will increase the threat; getting it wrong will further erode our already damaged credibility.

"Soldiers" of Terrorism

The most immediate threat we face is terrorism. The global jihad being waged by al Qaeda and like-minded Islamist fanatics draws upon these historical roots:

- Muslim reactions to colonial rule
- continued military defeats at the hands of the West
- a deep sense of humiliation and desire for revenge
- failures of governments and economies in North Africa, the Middle East, South Asia, and Southeast Asia
- increased emigration and the isolation and alienation often felt by marginalized immigrant communities
- a growing sense of unity among all Muslims fed by charismatic communicators, like Osama bin Laden, who use images of suffering—in Bosnia, Chechnya, Palestine, and Iraq, reinforced daily on Arab satellite television—to indoctrinate followers
- the common sense of purpose and lasting connections created by the ultimately successful jihad against the Soviet Union in Afghanistan.

We avoid the construct, but it is for America's current jihadist foes a religious war starting centuries ago and lasting until judgment day. It is this mindset that has been grafted upon the tactics of contemporary terrorism. The two now flow together, applying jihadist codes of operation to a terrorist repertoire. It is a powerful and dangerous combination.

Today's terrorist adversaries have no intention of matching America's superior military capability. They intend to exploit its vulnerabilities. Like all religious fanatics, they see themselves as morally superior, armed with the sword of God, commanded to wage a holy war. They see Americans as soulless, spineless, materialistic beings, unwilling to make sacrifices—people whose sole measures of well-being are the Dow Jones average and retail consumption, desperate for the peace and tranquility that the terrorists can deny.

The 9/11 attacks had cascading effects on the economy. Total direct and indirect costs amounted to hundreds of billions of dollars, and the effects are still being felt in some sectors. Terrorists have recognized the potential of economic warfare. They speak about this potential more often, although they have yet to fully exploit it.

AP/WIDE WORLD PHOTOS/IBRAHIM USTA

Turkish women ask for help from a policeman as they seek information about relatives after an explosion near the Neve Shalom Synagogue in Istanbul, Turkey, on Nov. 15, 2003.

Tomorrow's terrorists might become more adept in this endeavor. They could attempt to destroy our economy through terror alone—periodic devastating attacks, perhaps years apart, that will ensure the credibility of their continuing threats in the years in between. They already are becoming more adept at shaping our perceptions, exploiting the global news media to conduct "effect-based operations" in which they observe and measure how their own chatter and threats provoke security alerts that impose costly security measures and disrupt the economy.

Or they might move in the direction of cyberterrorism, applying technical skills to the task of protracted warfare against our information systems and commerce, possibly even carrying out remote physical sabotage via the Internet. What is now competitive "sport" to design a more malicious computer virus could become a more-organized strategy of destruction, or "virtual jihad."

"Combatants" of Organized Crime

The same conditions that foster terrorism also provide opportunities to organized crime. Failed government institutions, collapse of authority, cities filled with unemployed young men can be found in badlands and bad neighborhoods around the world. Organized crime has exploited its new space, as any other business cor-

AP/WIDE WORLD PHOTOS/HILAS NEWS AGENCY

Coffins of Afghanistan's Civil Aviation Minister Mirwais Sadiq and two high-ranking police officers are carried during the funeral in Herat, Afghanistan, on March 23. Sadiq, son of the powerful Herat provincial governor Ismail Khan, was killed in bloody clashes in Herat.

poration would, to include global sourcing, diversifying into new profitable areas, developing new markets, creating new business alliances.

The relationships between organized crime and terrorism are diverse and complex. To finance their operations, some terrorist groups have turned to crime or forged alliances of convenience with criminal groups, as in Colombia. In other parts of the world, organized crime is so pervasive and powerful that it challenges the state, as in the Balkans. In still other countries, the rulers themselves are criminals commanding states—sovereign outlaws.

Gangsters may recruit extremists to carry out terrorist attacks, as in Mumbai, India. National governments may employ criminals to attack foreign foes. Insurgents may move into organized crime. Professional criminals may act as middlemen in the transfer of small arms, explosives, or the ingredients of weapons of mass destruction; or they may provide the routes for the clandestine delivery of such weapons. Money laundering is an industry that serves both terrorists and organized crime.

Organized crime has exploited its new space to include global sourcing, diversifying into new profitable areas, developing new markets, creating new business alliances.

Smaller but More Virulent

Power is descending. Violence is escalating. In 1974, I wrote that the power to kill, destroy, disrupt, cause alarm, and oblige societies to divert vast resources to security is descending into the hands of smaller and smaller groups whose grievances, real or imaginary, it will not always be possible to satisfy. The irreconcilables, fanatics, and lunatics—who have existed throughout history—have become an increasingly potent force to be reckoned with.

Subsequent events have borne this out. Over the past three decades, terrorists have multiplied the number of their victims by an order of magnitude every 15 years. In the 1970s, the bloodiest terrorist incidents involved tens of fatalities. By the 1990s, hundreds were

being killed in the worst incidents, and these occurred more frequently. In 2001, the number reached the thousands, and today we fear scenarios in which tens of thousands might die.

Killing on this scale is hard to do. Conventional explosives alone won't suffice, nor will chemical weapons, unless used in massive quantities, or radiological attacks. Only biological or nuclear weapons can attain this level of lethality.

The exchange ratios are aligned against us. As we concern ourselves more with avoiding collateral casualties, even conserving the lives of enemy soldiers, our terrorist foes are more willing to carry out large-scale indiscriminate attacks. While our tolerance for friendly casualties has declined, terrorists have turned their religious conviction into a weapons system based on their readiness to die.

Time to Change

Increasingly, we are at war not with enemy states or enemy armies but with small groups of people or with specific individuals: fugitive terrorists, drug traffickers, warlords, dangerous dictators, rogue scientists. We find ourselves in the domain of manhunts, lethal takedowns, and individually targeted killings. The nature of these missions blurs military operations with law enforcement, changes the rules of engagement, and increases the requirement for precision, whether in economic coercion or in the application of military power. That, in turn, increases the demands on intelligence and the ability to rapidly exploit it.

Yet powerful institutional barriers to fundamental change remain. In the armed forces, there is still a tendency to view the current situation as an anomaly—as the "other war" as opposed to the "real war," as missions to be consigned to specialized units rather than to main forces, as opportunities to gain valuable field experience but not a compelling argument to radically alter how we organize to fight. We adapt incrementally. Given our great strength, that may suffice. But one wonders. It is nowhere written that we will win.

Bronze Age kingdoms, from the Mycenaeans to the Hittites, waged chariot warfare. When relatively primitive challengers fielded hordes of lightly armed foot soldiers, they changed the nature of warfare itself. The technologically advanced chariots became obsolete. Within a period of only several decades, the great Bronze Age kingdoms themselves collapsed, great cities were destroyed, commerce was significantly disrupted,

AP/WIDE WORLD PHOTOS/EPA/VALDRIN XHEMAJ

Ethnic Albanians in the center of Pristina, Kosovo, commemorate the fifth anniversary of the start of the NATO bombing campaign launched on March 24, 1999. Violence between Serbs and Kosovars continues in the province, the final status of which remains to be determined.

and much of the civilized world slid into a dark age that lasted 400 years.

Today, we confront an array of enemies whose diverse interests are served by obviating U.S. military superiority, destroying American cities, and disrupting commerce. These are not the "wars" we would prefer. They are not the ones that fit into our planning scenarios. Nor are they the contests where we necessarily have the obvious advantage. To the contrary, they are the ones that compel us to rethink our assumptions, to reconfigure our forces, and to reinvigorate our alliances. ■

Related Reading

Countering al Qaeda: An Appreciation of the Situation and Suggestions for Strategy, Brian Michael Jenkins, RAND/MR-1620-RC, 2002, 41 pp., ISBN 0-8330-3264-X, $15.00.

Deterrence & Influence in Counterterrorism: A Component in the War on Al Qaeda, Paul K. Davis, Brian Michael Jenkins, RAND/MR-1619-DARPA, 2002, 105 pp., ISBN 0-8330-3286-0, $20.00.

Remarks Before the Commission on Terrorist Attacks upon the United States, Brian Michael Jenkins, RAND/CT-203, 2003, 13 pp., $5.00.

Terrorism: Current and Long Term Threats, Brian Michael Jenkins, RAND/CT-187, 2001, 10 pp., $5.00.

Swollen Waistlines, Swollen Costs

Obesity Worsens Disabilities and Weighs on Health Budgets

By Roland Sturm and Darius Lakdawalla

Roland Sturm and Darius Lakdawalla are economists at RAND.

Obesity has become an epidemic in the United States since the 1980s. Severe obesity has spread the fastest. The epidemic has cut across all demographic groups irrespective of age, race, income, education, or geography. Meanwhile, everyone is paying for the epidemic.

Obesity is endangering the nation's health care system in at least three ways:

- Obesity is linked to higher health care costs than is smoking or drinking.
- Obesity and its attendant disorders—particularly diabetes, arthritis, and back problems—appear to be associated with rising disability levels nationwide.
- The added health care costs for obesity-related conditions among those who will be age 50–69 in the year 2020 could account for as much as 1 in 5 health care dollars.

Obesity and its attendant disorders appear to be associated with rising disability levels.

Officially, obesity has only very recently become a public health priority; smoking and drinking have received far more attention. As part of its Healthy People 2010 initiative, the U.S. Public Health Service is now seeking to reduce the proportion of children, teenagers, and adults who are overweight or obese. A related goal of Healthy People 2010 is to increase physical activity among Americans. And in March 2004, the U.S. government launched an advertising campaign to promote exercise and healthier eating.

Nonetheless, the trends in obesity have been going in the wrong direction for 20 years without any sign of letting up. It is not clear that simply declaring weight control a higher national priority and producing an advertising campaign will lead to weight loss and improved health. Lasting behavioral change is rarely achieved only by exhorting individuals to exercise more, to eat healthier, to stop smoking, or to drink responsibly.

Many factors contribute to the obesity epidemic, and targeting some of them could be beneficial. Some of the recent environmental changes that have tipped the scales in favor of higher caloric intake and away from physical activity include inexpensive food that is high in calories, urban developments that are friendly to cars but hostile to walking and biking, and desk jobs.

Even though Americans are exercising more than ever in their *leisure* time, the occasional gym visits do not compensate for the decline in *utilitarian* physical activity (like walking kids to school, walking to the corner store, or walking to work). Most likely, it will be

necessary for policymakers to weigh the many factors contributing to the obesity epidemic and to select the environmental interventions that show the greatest promise.

America Breaks the Scale

Obesity is defined as weight that is dangerously excessive because of its high proportion of body fat relative to lean body mass. A good screener for obesity is the Body Mass Index (BMI). BMI is a person's weight in kilograms divided by height in meters squared. Because the BMI does not distinguish body fat from bone and muscle mass, the index can misclassify some people, such as those with large bones or muscles.

The standard BMI categories are as follows: underweight (BMI less than 18.5), normal (18.5 to 24.9), overweight (25 to 29.9), and obese (30 or more). The table illustrates how the BMI is used when expressed in pounds. For example, a man or woman who is 5 feet 6 inches tall is within the normal weight range at 115 to 154 pounds, overweight at 155 to 185 pounds, and obese at 186 pounds or more.

Most Americans are either overweight or obese. More than one in five U.S. adults are classified as obese based on self-reported weight, which usually underestimates weight. About one in three U.S. adults are classified as obese based on objectively measured weight. Figures 1 and 2 show how obesity (based on self-reported height and weight) has spread from coast to coast since 1990.

The fastest growing group of obese Americans are "severely" obese—those with either a BMI of 35 to 40 (defined as class II obesity by the World Health Organization) or a BMI of 40 or more (class III obesity). The average man with a BMI over 40 weighs 300 pounds at a height of 5 feet 10 inches, while the average woman with a BMI over 40 weighs 250 pounds at a height of 5 feet 4 inches.

Between 1986 and 2000, the proportion of moderately obese individuals (those with a BMI of 30–35) merely doubled in the United States. In contrast, the proportion of individuals with a BMI of 40 or greater quadrupled from 1 in 200 adults to 1 in 50 adults (see Figure 3).

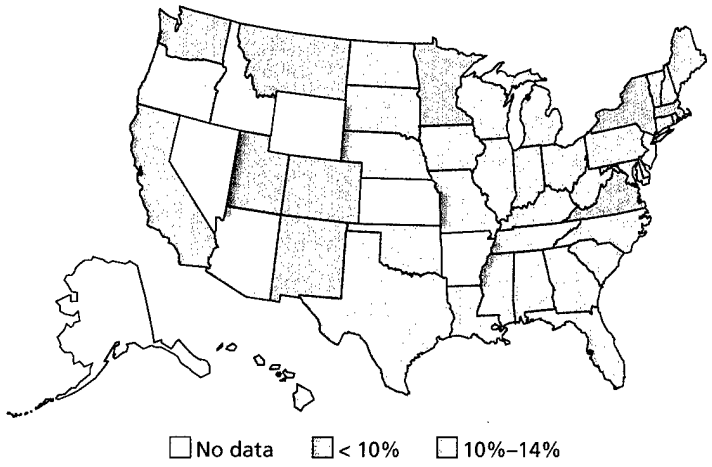
Costlier Than Smoking or Drinking

Obesity is linked to very high rates of chronic illnesses—higher than living in poverty and much higher than smoking or drinking. Figure 4 compares the

Body Mass Index Categories Measured in Pounds

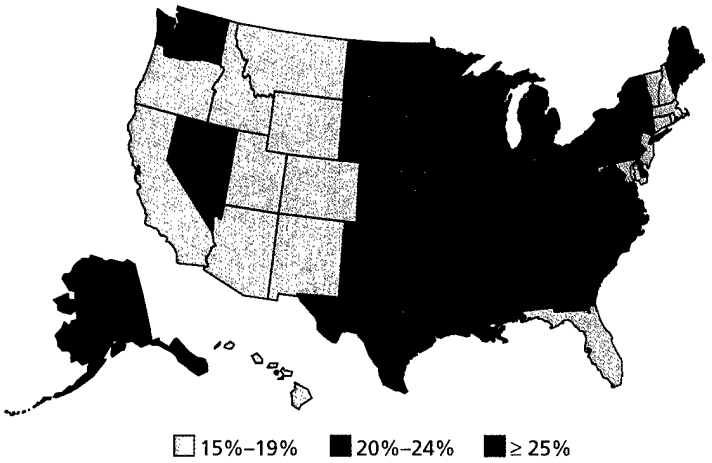
Height	Normal	Overweight	Obese
5'6"	115 to 154	155 to 185	186 or more
5'9"	125 to 168	169 to 202	203 or more
6'	137 to 183	184 to 220	221 or more

Figure 1—In 1990, No State Reported an Obesity Rate of More Than 14 Percent



SOURCE: U.S. Centers for Disease Control and Prevention, *Behavioral Risk Factor Surveillance System*, www.cdc.gov/brfss/pubrfdat.htm (as of March 2004).

Figure 2—By 2002, No State Reported an Obesity Rate of *Less* Than 15 Percent



SOURCE: U.S. Centers for Disease Control and Prevention, *Behavioral Risk Factor Surveillance System*, www.cdc.gov/brfss/pubrfdat.htm (as of March 2004).

Obese individuals incur higher health care costs than current smokers or problem drinkers.

increase in chronic conditions related to obesity. The conditions of concern here are asthma, diabetes, heart disease, high cholesterol, hypertension, osteoarthritis, and some forms of cancer.

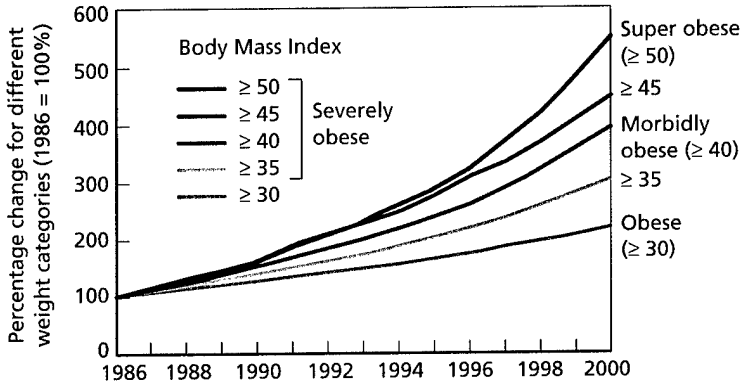
When compared with 100 normal-weight individuals of the same age and sex having similar backgrounds, 100 obese people would be expected to suffer 67 additional chronic conditions among them. In comparison, the increase associated with smoking is only about 25 additional conditions per 100 smokers (compared with 100 similar nonsmokers) and 12 additional conditions for problem drinkers.

Aging 20 years, from 30 to 50, is the only health risk comparable to obesity. Severely obese individuals, at least those who are aged 50–69, are more than twice as likely as are their normal-weight peers to be in only "fair" or "poor" health and suffer about twice as many chronic medical conditions.

Consequently, obese individuals incur higher health care costs than current smokers or problem drinkers. The obese spend 36 percent more on health care services and 77 percent more on medications than do their normal-weight counterparts. Current smokers spend only 21 percent and 28 percent more, respectively, than do nonsmokers; and problem drinkers spend yet smaller additional amounts on health care (see Figure 5).

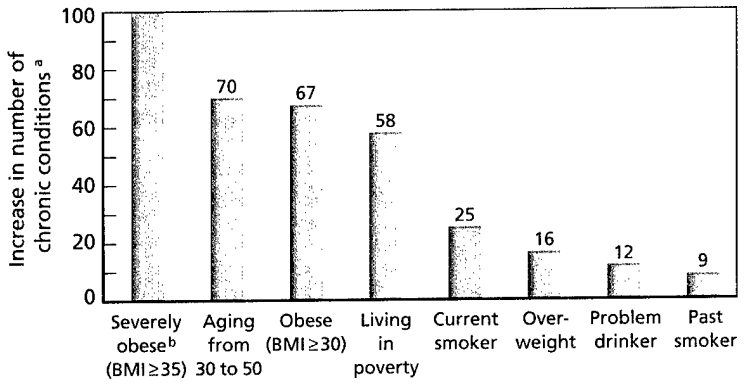
The rapid growth in the proportion of Americans with clinically *severe* obesity has enormous implications for the nation's health care system. With many more chronic medical conditions, the severely obese incur much higher costs for health care than do their normal-weight counterparts. Whereas moderate obesity (a BMI of 30–35) is associated with 20–30 percent higher health care costs than those for normal-weight Americans between ages 50 and 69, a BMI over 35 is associated with a 60 to nearly 70 percent increase. And a BMI of at least 40 more than doubles health care expenditures.

Figure 3—The More Obese the People, the Greater the Increase in Their Proportion of the Population



SOURCE: "Increases in Clinically Severe Obesity in the United States, 1986–2000," 2003.
NOTE: Body Mass Index is weight in kilograms divided by the square of height in meters.

Figure 4—Obesity Is Linked to Dramatic Increases in Chronic Conditions



SOURCES: "The Effects of Obesity, Smoking, and Drinking on Medical Problems and Costs," 2002; "Increasing Obesity Rates and Disability Trends," 2004.
NOTE: Baseline = comparable normal-weight individuals with no history of smoking or heavy drinking.
[a] Per 100 adults in each category compared with 100 similar adults not in each category.
[b] Data for the severely obese available only for men and women aged 50–69.

Obesity and Disability

Weight has a dramatic effect on people's ability to manage five basic activities of daily living: bathing, eating, dressing, walking across a room, and getting in or out of bed. Men with moderate obesity are 50 percent more likely to have limitations in these activities; men with a BMI of 35 or more are 300 percent more likely to have limitations. Obesity is even more likely to be disabling among women, for whom the probability of having the limitations doubles with moderate obesity and quadruples with a BMI of 35 or more.

The relationship between obesity and disability may now be playing out on the national stage. Disability rates have spiked, especially for people aged 30–39. The number of people in this age group unable to care

for themselves or to perform other routine tasks grew by more than 50 percent from 1984 to 1996—from 118 to 182 people per 10,000 (see Figure 6).

For people aged 40–49, the number rose from 212 to 278 people per 10,000. There were smaller but still significant increases for those aged 18–29 and 50–59. In contrast, disability declined slightly for people aged 60–69.

All possible explanations for the increasing disability rates have not yet been exhausted. However, obesity appears to be the only trend that is commensurate in size with what we see happening with disability. Although mental health is among the *most prevalent* causes of disability among the nonelderly, the *fastest growing* causes are diabetes and musculoskeletal problems (primarily back problems), conditions that are associated with obesity. Since 1984, the proportion of diabetes-related disability cases has doubled.

Heavy Load on Health Care

If historical obesity trends continue through 2020 without other changes in behavior or medical technology, the population would become sicker than it is today. The proportion of individuals aged 50–69 who would report only "fair" or "poor" health would rise by 12 percent among men and 14 percent among women, compared with the year 2000. This age group represents those who were born between 1951 and 1970.

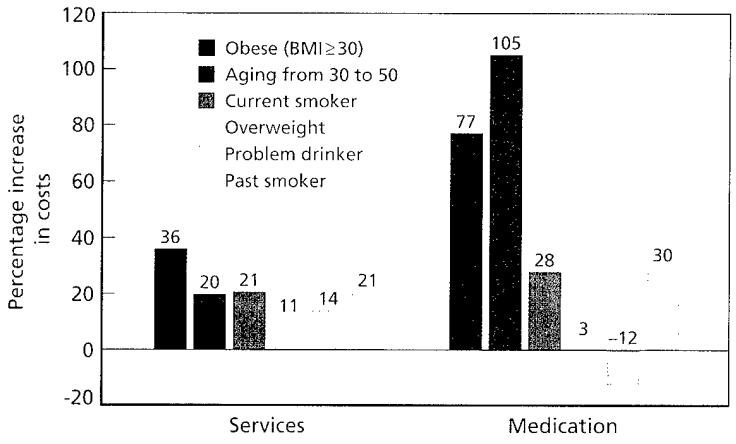
The medical care cost consequences could be dramatic: One in five health care dollars for this age group could be consumed by treating only the consequences of obesity, up from less than one in ten dollars in 1985 (see Figure 7). Rising disability rates among the future elderly would wipe out recent reductions in disability among today's elderly, who have benefited from reduced exposure to disease, better medical care, and reduced smoking.

Sustained increases in disability rates would swell the ranks of residents in nursing homes in the United States. During the past 20 years, the rate of institutionalization among the elderly has fallen dramatically. But it appears that the recent increases in obesity among young to middle-aged adults will reverse the downward trend. By 2016, the nursing home population is likely to grow by 10–25 percent more than historical trends would predict.

Such growth would impose a heavy burden on Medicaid, the source of funding for more than three-quarters of nursing-home care in the country. If the

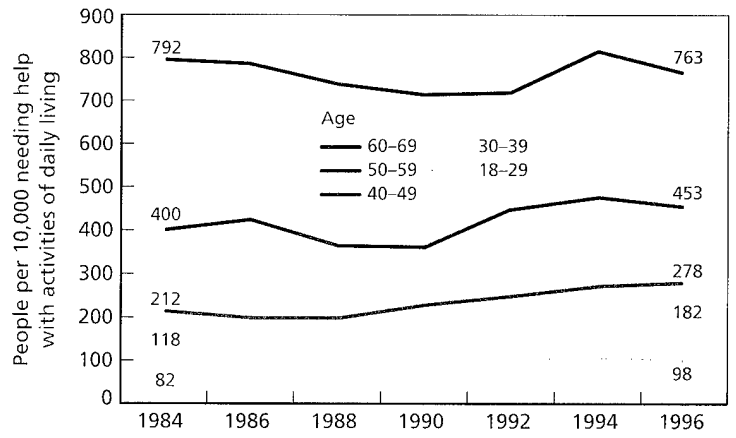
Iris Caballero fixes a nutritious lunch at her home in Cutler, Calif., on Feb. 11. Caballero, who suffers from diabetes, has learned to prepare low-fat meals to help her lose weight.

Figure 5—Obese Individuals Spend More on Health Care Than Smokers or Drinkers



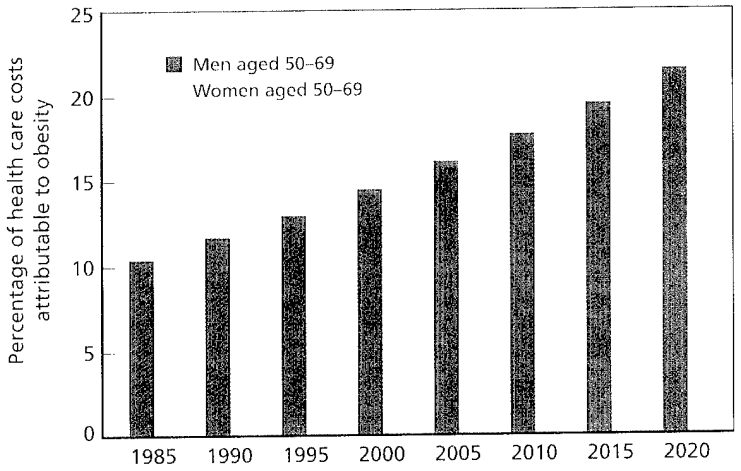
SOURCE: "The Effects of Obesity, Smoking, and Drinking on Medical Problems and Costs," 2002.
NOTE: Baseline = comparable normal-weight individuals with no history of smoking or heavy drinking.

Figure 6—Disability Rates Have Increased Among All Age Groups But the Oldest

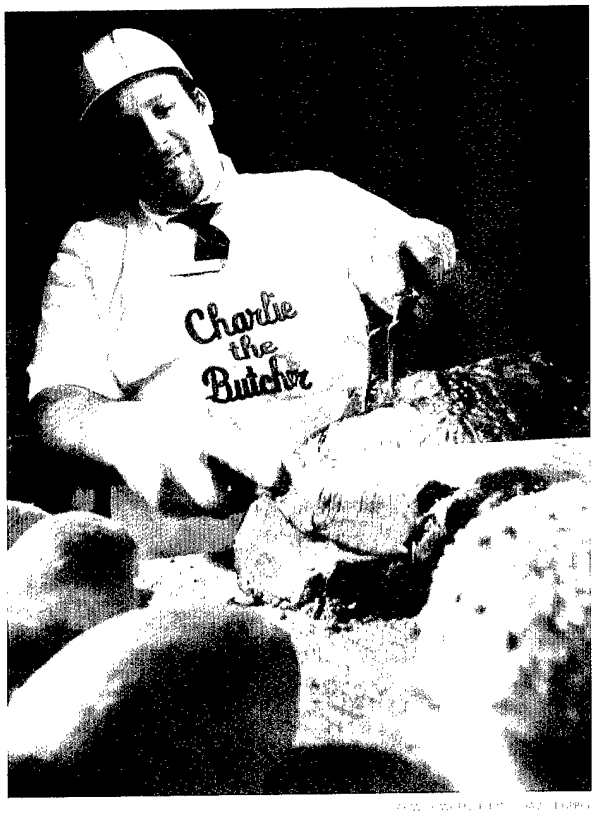


SOURCE: "Are the Young Becoming More Disabled?" 2004.

Figure 7—20 Percent of Health Care Costs Could Be Consumed by Treating Obesity



SOURCES: "Increasing Obesity Rates and Disability Trends," 2004.



Tim Roesch, manager of the Charlie the Butcher restaurant, carves a "mini beef on plain" for a customer in Williamsville, N.Y., on Feb. 23. Like other Buffalo area restaurants, Charlie the Butcher is participating in a "Healthy Options" program by offering smaller turkey and beef portions on a plain low-sodium roll.

It is virtually impossible for Americans to assess the nutritional content of food prepared away from home.

nursing home population grows by 10–25 percent, then Medicaid spending on long-term care could also rise by 10–25 percent.

This prediction might even be a rosy scenario. Another possibility is that the price of nursing home care will rise sharply (to meet demand) and that Medicaid eligibility will simultaneously contract (to limit the growth in nursing home residence). In this case, the greatest costs would be borne not by governments but by the sick and disabled individuals who might be unable to afford the higher price of a nursing home.

Obese individuals face greater burdens in terms of disabilities and chronic diseases than do other people. However, the sum of the individual burdens imposes major social burdens on health budgets and on health care delivery in general.

Easier to Put It On

The recent increases in obesity could be attributed to numerous economic and lifestyle changes within the past 20 years. The price of some foods—from fast foods to fats and sugars—has fallen relative to the Consumer Price Index, whereas the price of fruits and vegetables has risen (see Figure 8). Americans are eating out more, which often means eating food that is both more calorie-dense and heavier in fat and added sugars than food prepared at home. Meanwhile, as mentioned above, many environmental conditions have discouraged physical activity: desk jobs, long commutes, and urban landscapes hostile to walking and biking.

To reduce smoking rates and alcohol problems, policymakers have applied environmental interventions (or relative price changes), from taxation to access controls such as indoor smoking bans. Comparable policies for food are beginning to appear in some locales. School districts, for example, have begun to remove soda machines, and a few states have passed some form of "Twinkie" tax on foods that are perceived as being less healthy.

But some of the simplest and least intrusive policy changes have yet to be made. Today it is virtually impossible for Americans to assess the nutritional content of food prepared away from home. This is becoming more problematic as Americans are consuming increasing shares of their food away from home.

The nutritional quality of food consumed away from home is lower, and the food tends to contain more fats and sugars. U.S. Department of Agriculture researchers have calculated that if food prepared away

from home today had the same average nutritional content as food prepared at home in 1995, Americans would be consuming 197 fewer calories per day. This difference, by itself, is larger than the increased caloric imbalance—of calories consumed minus calories burned—that has fueled the obesity epidemic among adults.

The location of consumption thus appears to dramatically alter the nutritional content of food. This should come as little surprise. If adults lack information about nutritional content at the point of consumption, they will choose food based not on nutritional content but rather on the dimensions that can be easily evaluated—price, amount, and taste—the latter of which is easiest and most cheaply achieved by adding fat and sugar.

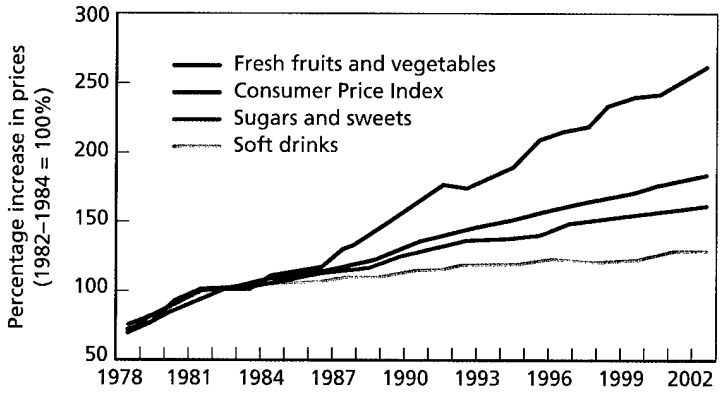
This pattern is a type of market failure. If nutritional quality is an important dimension but cannot be assessed by a buyer, the cheaper or larger or tastier competition will drive out the higher-quality products even if the latter would be preferred by buyers with more-complete information. When informational problems such as these are sufficiently severe, regulation is needed to promote an efficiently working market.

Standardized labeling of the caloric content of menu items in restaurants would seem to be a simple first measure for policymakers to consider. Unless Americans know what they are eating, how can they make better choices? Of course, there is always the possibility of doing nothing, but then we had better brace ourselves for the higher public and private health spending caused by obesity. ■

AP/WIDE WORLD PHOTOS/FRANK FRANKLIN II

Nathaniel Cabrera, 4, right, stretches with classmates during a Head Start pilot program aimed at preventing childhood obesity at PS 5 in New York City.

Figure 8—Price of Healthy Food Has Risen Relative to Consumer Price Index



SOURCE: U.S. Department of Agriculture, Economic Research Service.

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We Need a Vision for Wind Tunnels—Not Tunnel Vision

PHOTO: DIANE BALDWIN

By Philip S. Antón

Philip Antón is a senior information and computer scientist at RAND.

Today, we take it for granted that we can fly—and fly safely. But it was not until 1871, when Frank Wenham built the world's first wind tunnel, that scientists and engineers truly began controlled analysis and aeronautic prediction for the science of flight. Wind tunnels have since been among the most important tools of aeronautical research, playing an instrumental role in everything from the Wright brothers' first flight at Kitty Hawk to the recent parachute landings of two Mars rovers.

Despite the demonstrated importance of wind tunnels, there is a growing belief that the nation no longer needs the wind-tunnel capacity it has built up over the decades. This belief is based on the view that the aeronautics industry has matured, production has tapered, and whatever needs we have for aeronautic prediction capabilities can be met through other means, such as sophisticated computer simulation technology.

There is an element of truth to these arguments. Aeronautics is relatively mature. When RAND researchers looked at design and production counts over the past five decades, they found that the number of new aircraft designs reaching production—both military and civilian—had declined from more than 50 in the 1950s to about 10 in the current decade. But this decline hides a more subtle point: No class of aeronautic vehicles (e.g., jetliners, fighters, bombers, or helicopters) has gone away, and the nation must continue to predict airflow behavior across a range of design considerations for each vehicle class.

Design and production needs are not the only considerations. Research continues to advance aeronautic performance, to reduce environmental effects, and to explore new system concepts. Numerous concepts for military and commercial aircraft, space systems, and missiles are in the pipeline through the year 2020, ensuring the need for aeronautic prediction capabilities into the future.

But perhaps most important of all are the strategic needs that are derived from long-term national goals and strategies, such as "national security" writ large. Do we, for example, want national security–related programs to depend on sources beyond our national control because we do not have the capability to conduct the programs ourselves? Anticipated strategic needs include everything from space access to commercial vehicles to military weapons.

To meet these needs, we have to rely on multiple test capabilities—subsonic, transonic, supersonic, hypersonic, hypersonic propulsion integration, and direct-connect propulsion—in both general-purpose and specific-purpose categories. When RAND researchers assessed whether the existing capabilities in those categories were still needed, they found that, with only a few exceptions, the capabilities were needed for strategic reasons.

But does the nation really need wind tunnels to provide these capabilities? It is true that sophisticated computer simulation technology, like computational fluid dynamics (CFD), has made inroads in reducing *some* empirical test simulation needs. But CFD is not yet reliable for predicting the characteristics of the complex separated airflows that still dominate most critical design points for new and modified aircraft. Although CFD technology may become a comprehensive solution in the future, we will not realize that potential for decades. Moreover, attaining that potential will require, ironically, many precise wind-tunnel experiments. We cannot hope to replace wind tunnels down the road without maintaining high-quality wind tunnel testing facilities now.

With pressing budget concerns, it is tempting to abandon or to mothball wind tunnels as a way to make ends meet. But given the continuing importance of aeronautic vehicles and the critical role wind tunnels play in their creation, we need to make sure that our decisions are not shortsighted. We should not allow budget concerns to blind us to the national infrastructures that serve important national needs. ■

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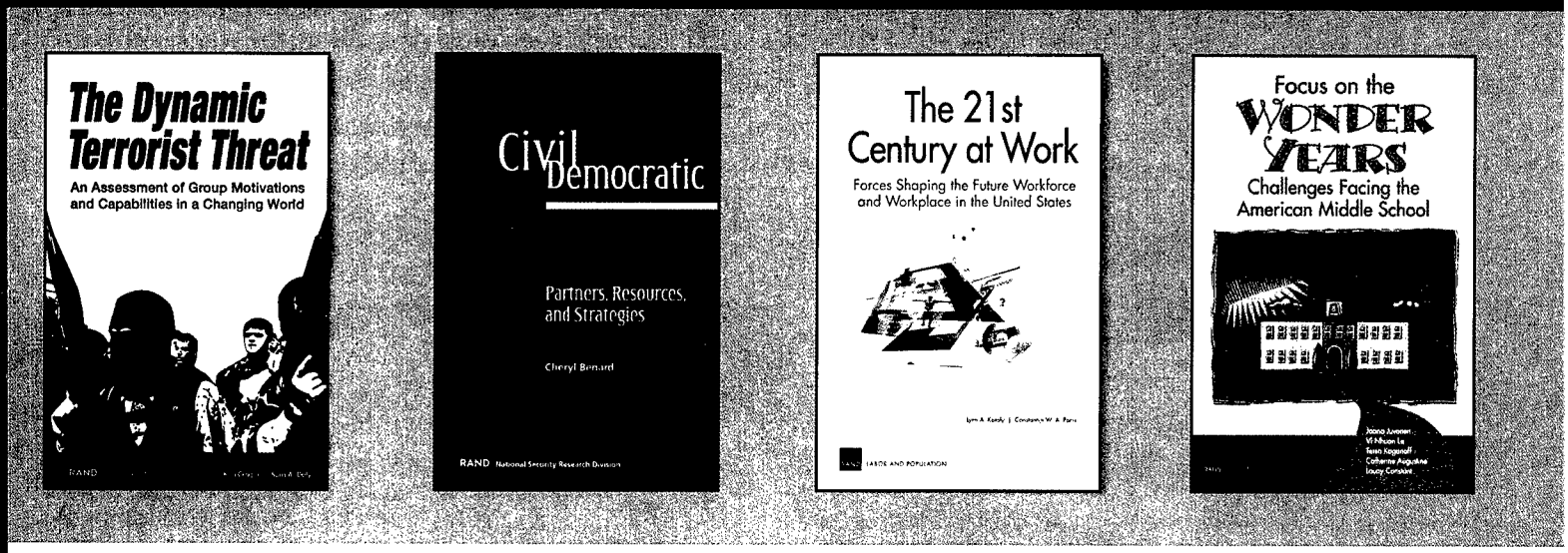

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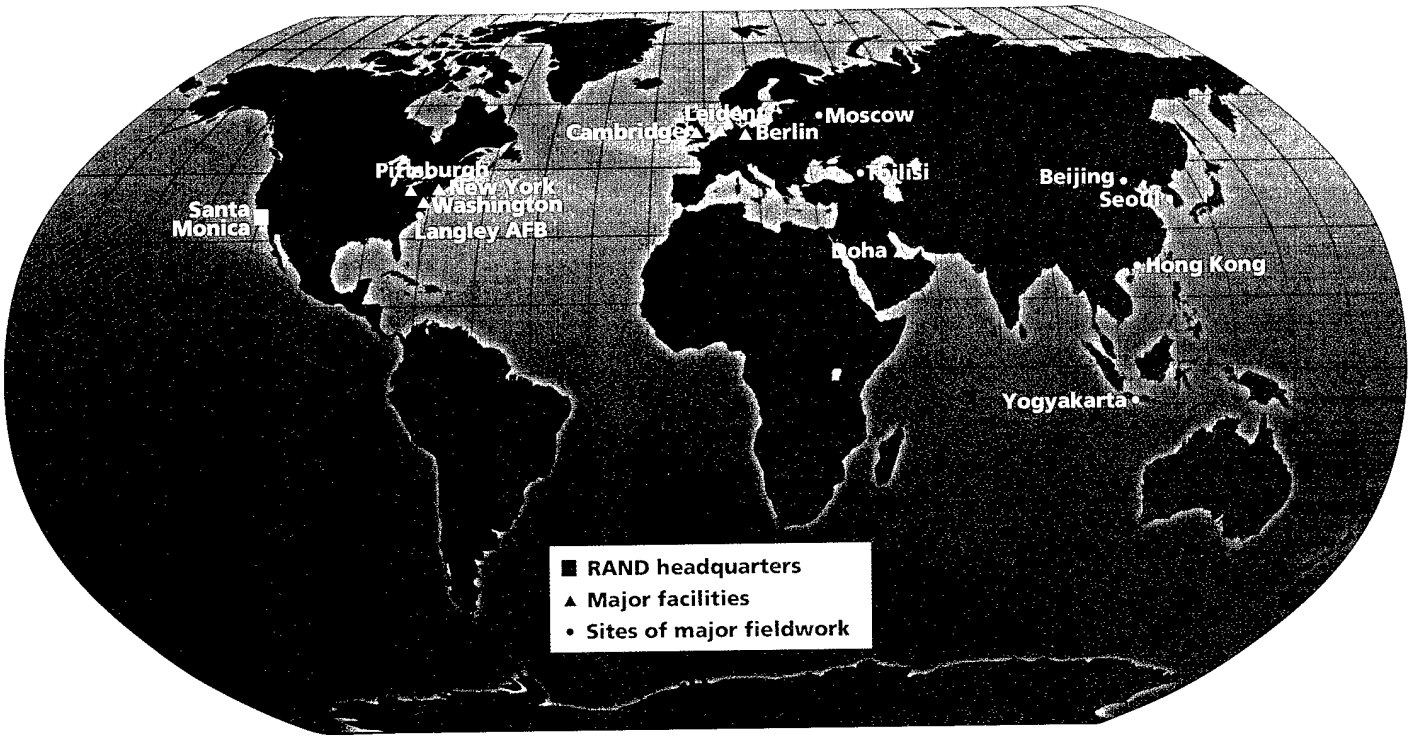

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